TOP SECRET

NPIC/R-299/64

May 1964

Copy 106

15 Pages

[redacted]

PHOTOGRAPHIC INTERPRETATION REPORT

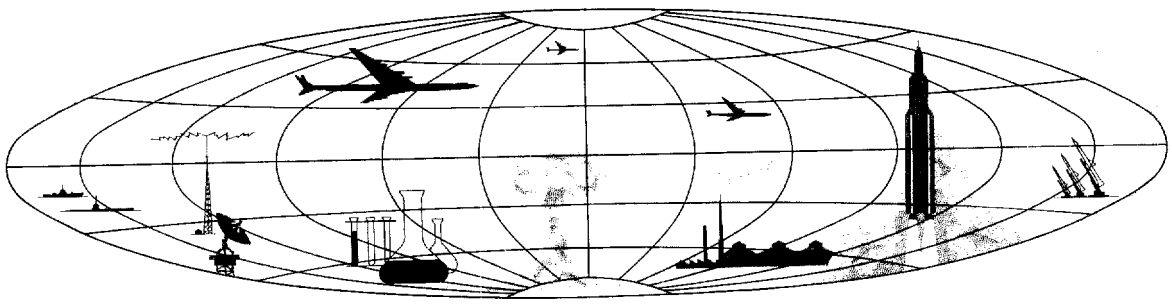
CIRCUMFERENTIAL RADAR SITES LENINGRAD, USSR

CIA

DIA

25X1

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER



TOP SECRET

PHOTOGRAPHIC INTERPRETATION REPORT

CIRCUMFERENTIAL RADAR SITES LENINGRAD, USSR

NPIC/R-299/64

May 1964

NATIONAL PHOTOGRAPHIC INTERPRETATION CENTER

NPIC/R-299/64

INTRODUCTION

Leningrad is surrounded by a number of circumferential radar sites. Six of these, termed the outer sites, are positioned at generally regular intervals through all quadrants of the compass at a distance from a common center at Leningrad ranging from approximately 120 to 150 nautical miles (nm) with the exception of the site near Vyborg (Figure 1). This site, 70 nm from Leningrad, could not be positioned farther out because of the proximity of the Finnish border. Four others, the inner sites, are positioned approximately 25 nm from the center of Leningrad in the northwest, northeast, southeast, and southwest quadrants, thus also forming an approximate circle or ring (Figure 2).

For the first time, it has been possible to identify by type all of the antennas at one of these sites, the large-scale photography of Mission [redacted] revealing that the Sortavala outer site contains 2 TALL KING radar antennas, 3 SPOON REST, 3 height finders (probably ROCK CAKE), and a possible microwave antenna. Although the small-scale coverage of the other sites allows the definite identification of only one other antenna, a TALL KING at the Vyborg site, it is believed that the components of the Sortavala site are typical of all the outer sites since they are all very similar in overall appearance and since it is possible to determine at all the sites, both inner and outer, that there are radars on mounds even though these cannot be precisely identified.

25X1D

All the sites reflect similar design considerations in regard to layout and orientation. For example, the radar components at each site are arranged along a connecting roadway that runs the length of the site, the radars forming a parallel, generally straight line. This line, when extended, is a chord of the imaginary circle formed by the ring of sites. Further, with respect to the connecting roadway, the radar components at all of the sites are placed to the outside (the side away from Leningrad).*

*The only exception to this is the site near Borovichi, which is common to both Moscow and Leningrad. This site has already been described in detail 1/ and is not included in this report.

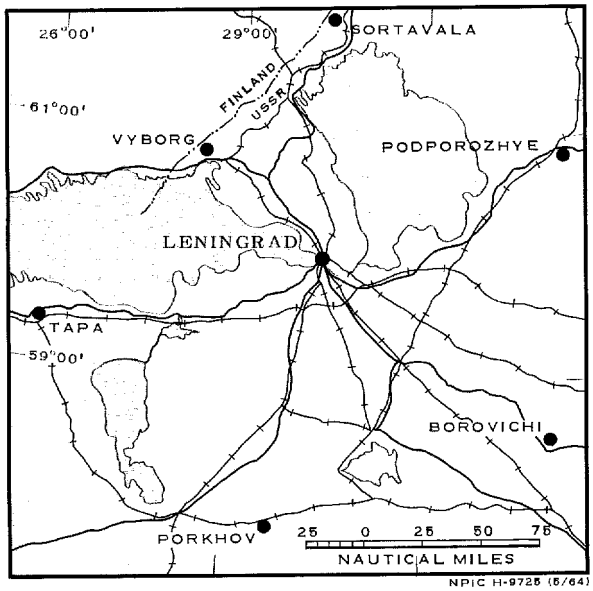


FIGURE 1. LOCATION OF OUTER SITES.

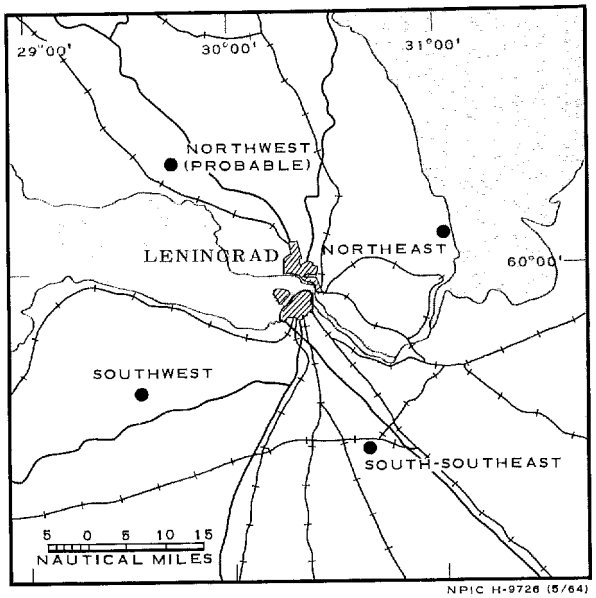


FIGURE 2. LOCATION OF INNER SITES.

NPIC/R-299/64

OUTER SITES

All the outer sites are remarkably similar. At each, the components are arranged along a common connecting roadway, the length of which averages approximately 2,600 feet. The components generally include five radar mounds (or low towers that substitute for mounds) with a large control bunker situated near the center. If considered to be facing out from Leningrad, this central control bunker has a small, generally circular bunker close to its left side; to its right, and often to the left as well, is a square or rectangular bunker with a TALL KING antenna (though photographic limitations preclude the identification of this feature at all of the sites). In addition, all of the outer sites include at least one concrete apron that contains an unidentified object.

It is interesting to note that the layout of the individual sites varies slightly in order to conform to an overall pattern (Figure 3). Thus, when considered to be facing outward from Leningrad as before, the three sites in the western sector -- Vyborg, Tapa, and Porkhov -- have three radar mounds on the left side of the control bunker and two on the right. In the eastern sector sites -- Sortavala, Podporozhye, and Borovichi -- the arrangement is not nearly as symmetrical but, generally speaking, there are more radar mounds on the right side than on the left. In view of this, it seems apparent that each site operates on a sector scan assignment rather than on an omnidirectional one.

There is a support area for each of the outer sites, usually containing 18 to 20 buildings. Based on a detailed analysis of the Sortavala coverage, it is possible to determine that each site is self-supporting, having an independent diesel-electric power plant, an industrial shop, officer and enlisted personnel quarters, a headquarters building, a motor pool and garage, and a probable microwave relay antenna.

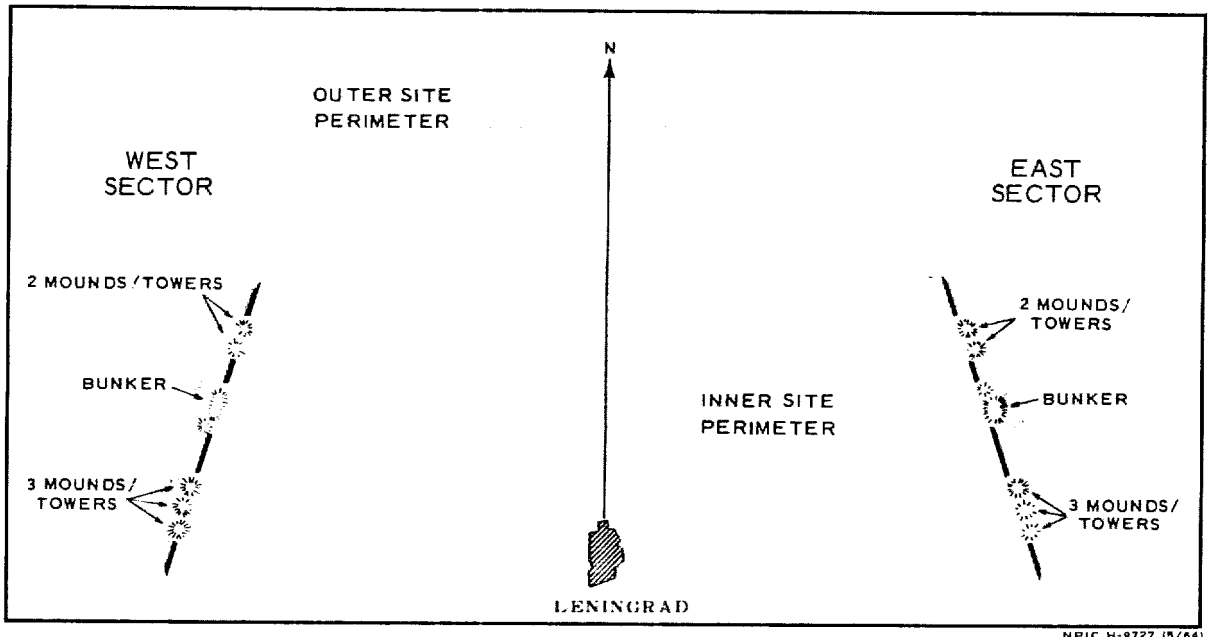


FIGURE 3. ORIENTATION PATTERN OF OUTER SITES.

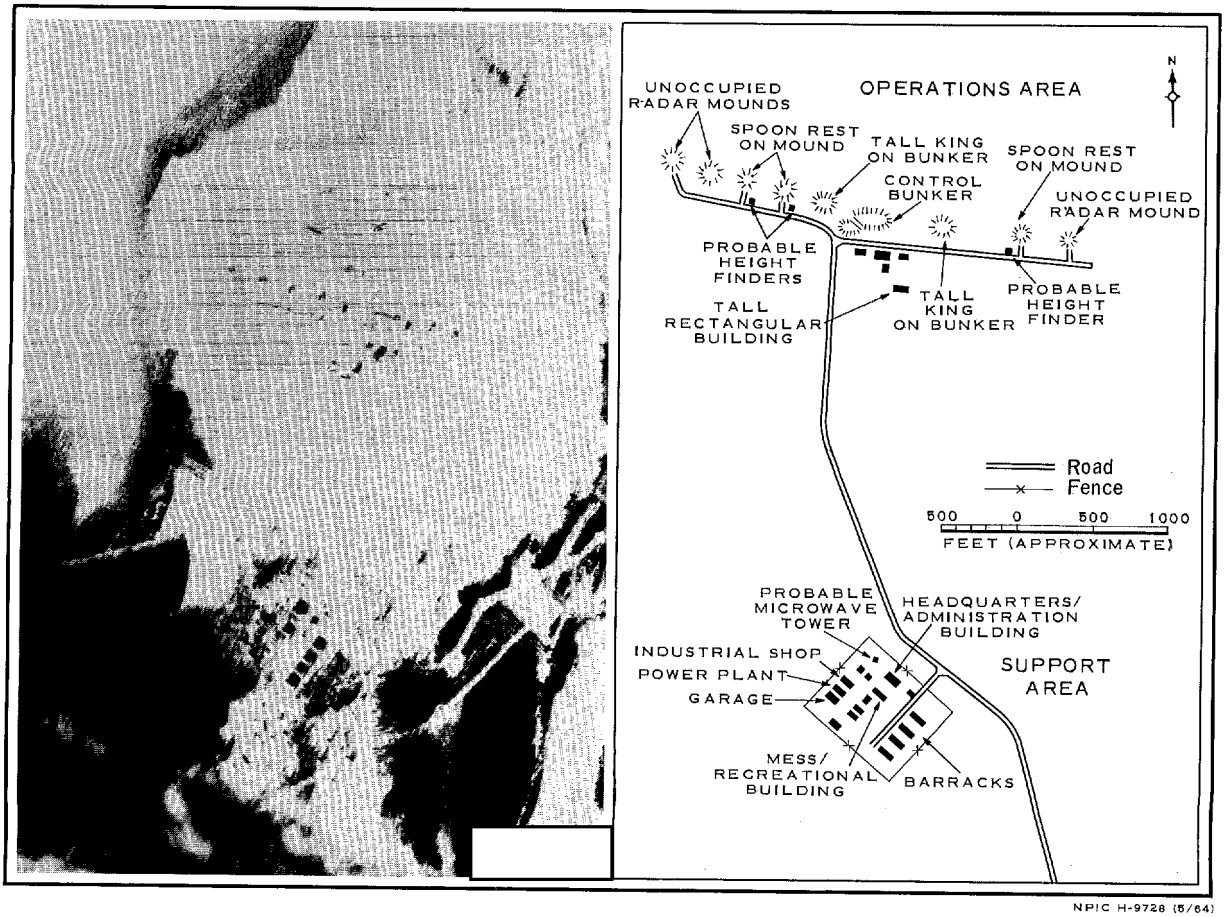
Sortavala

Location: 13 nm NNW of Sortavala
Coordinates: 61-52-55N 30-25-40E

25X1 [redacted]

Map: USATC 200/0103-15AL, 2d ed, Nov 59, 1:200,000 (SECRET)

25X1 Remarks (Figure 4): The larger scale of 25X1 [redacted] photography permits identification of the following radar antennas: 2 TALL KING, each on the roof of a small bunker beside the large, centrally located control bunker; 3 SPOON REST on mounds, 2 to the west of the control bunker and one to the east; 3 height finders, probably ROCK CAKE, each on level ground near its companion SPOON REST. Three additional radar mounds are unoccupied. The fenced support area includes 4 enlisted-personnel barracks, a duplex officers quarters building, a headquarters/administration building, a mess/recreation building, an industrial shop, a large diesel-electric power plant, a large fuel-oil bunker, a double-door garage, a vehicle shed, and approximately 8 utility sheds and buildings of varying size. A lattice tower in the northeast corner of the support area appears to be a microwave relay antenna but its exact function has not been determined.



25X1 [redacted]

FIGURE 4. SORTAVALA RADAR SITE.

NPIC/R-299/64

Podporozhye

Location: 6.5 nm SSE of Podporozhye

Coordinates (approximate): 60-48N 34-15E

25X1D [redacted]

Map: USATC 200/0102-16HL, 3d ed, Jul 63, 1:200,000 (SECRET)

Remarks (Figure 5): The operations area contains only four radar mounds, the most northerly having an associated mast. A low or bunkered building is at the southern end of the radar line. A concrete apron opposite one of the radar mounds contains an unidentified object at its center, and there is a tall rectangular building just east of the control bunker. A typical support area is about 1.2 nm north-northeast.

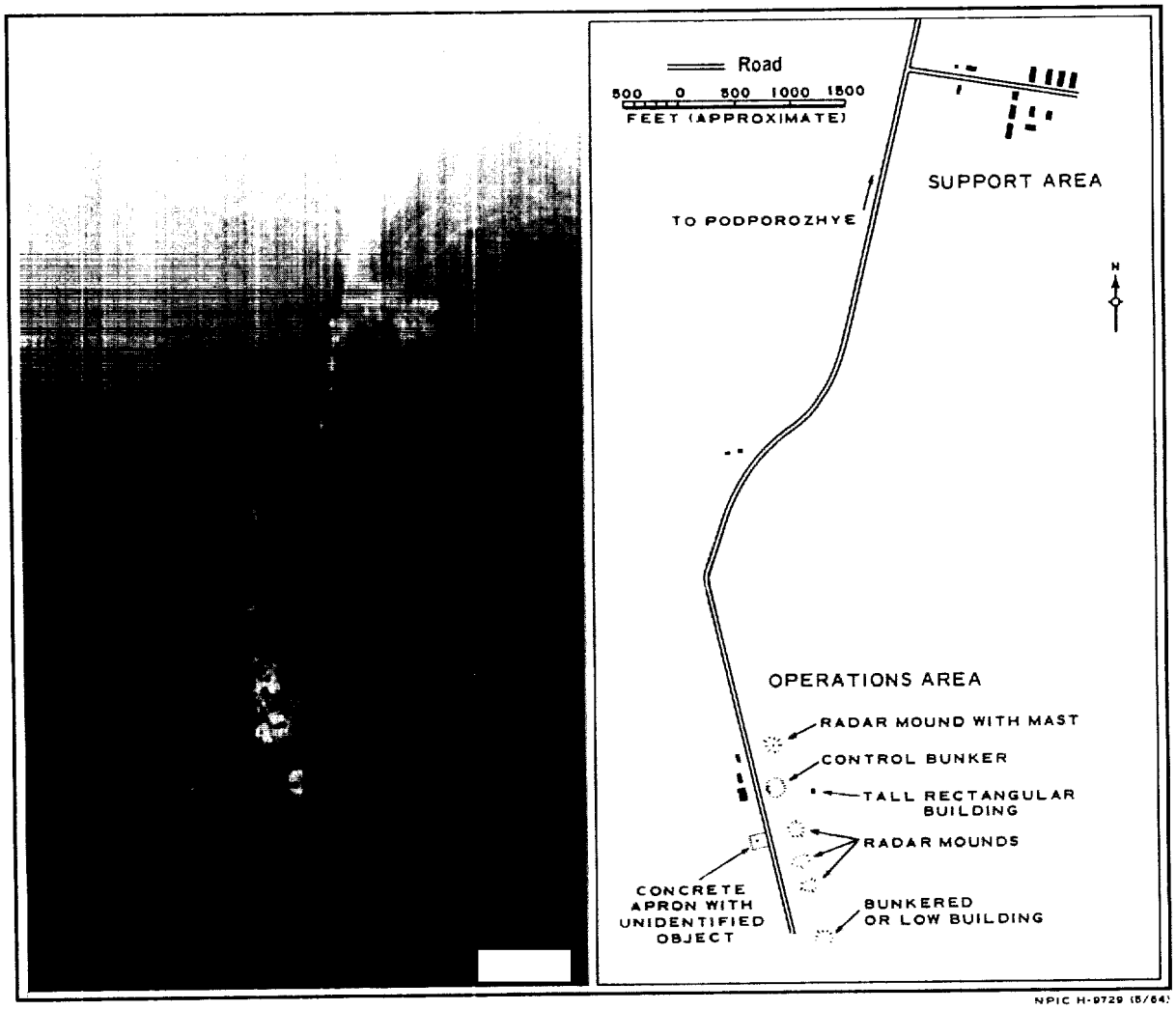


FIGURE 5. PODPOROZHYE RADAR SITE.

25X1D

NPIC/R-299/64

25X1A

Porkhov [redacted]

Location: 4 nm SE of Porkhov

Coordinates: 57-44-00N 29-40-00E

25X1D [redacted]

Map: USATC 200/0153-14HL, 3d ed, Dec 62, 1:200,000 (SECRET)

Remarks (Figure 6): The operations area contains all the usual components including two TALL KING-type bunkers. The five radar mounds are all occupied. A typical support area is about 4,000 feet west-southwest and an electrical power trace from the direction of Porkhov enters the site midway between the two areas.

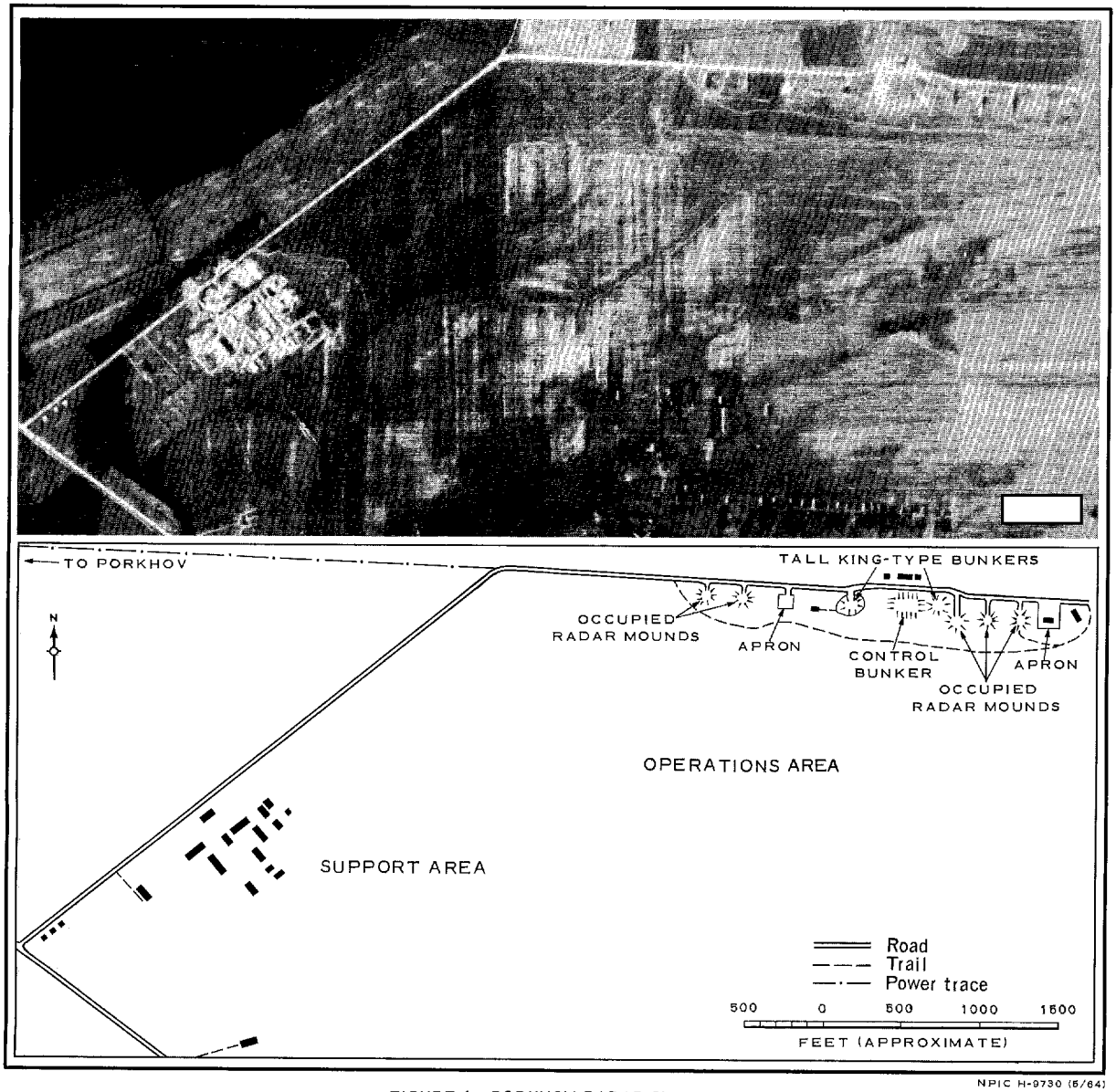


FIGURE 6. PORKHOV RADAR SITE.

NPIC/R-299/64

25X1A

Tapa [redacted]

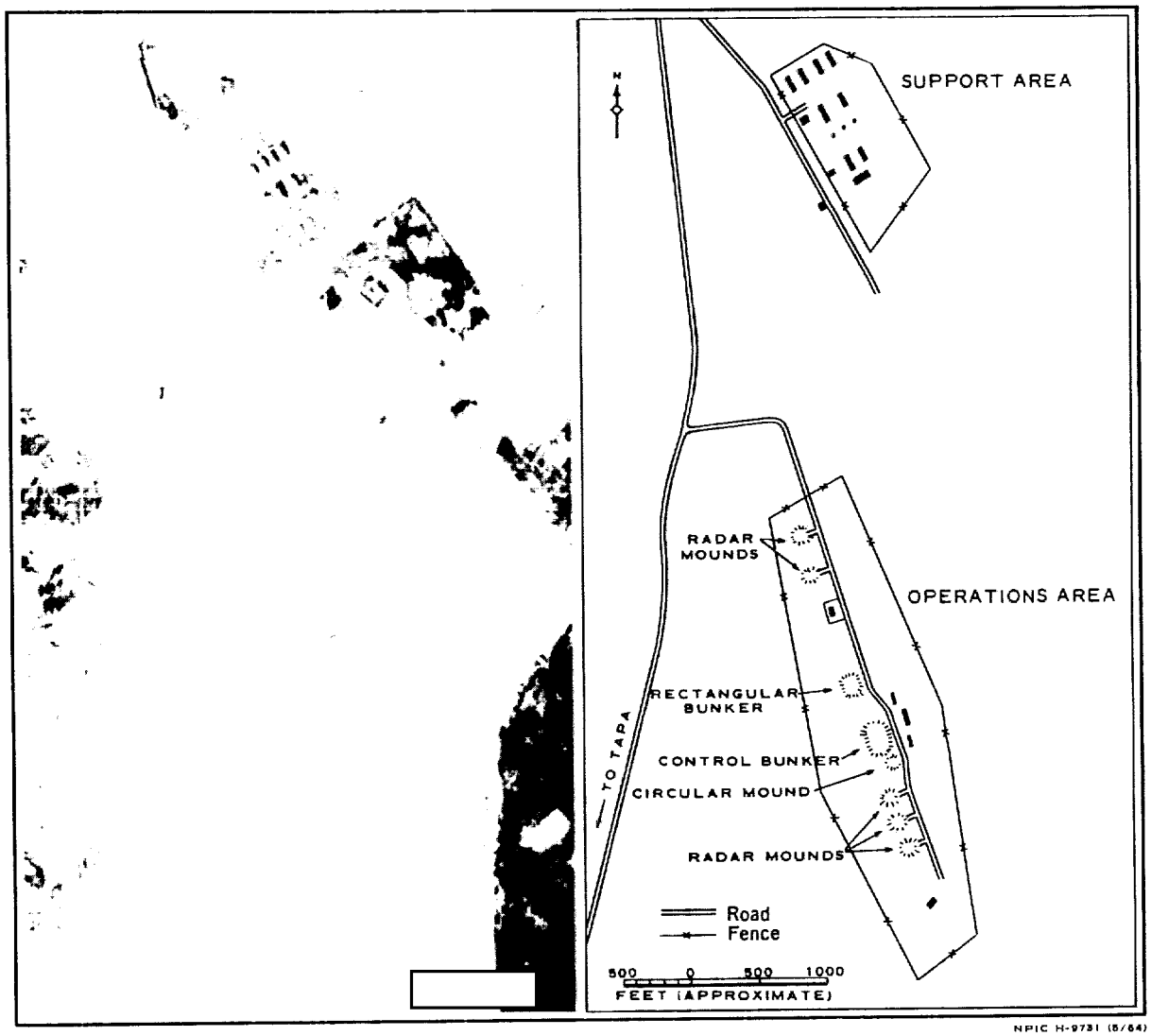
Location: 3.5 nm NE of Tapa

Coordinates: 59-18-40N 26-01-20E

25X1D [redacted]

Map: USATC 200/0153-2HL, 3d ed, Aug 63, 1:200,000 (SECRET)

Remarks (Figure 7): The fenced operations area includes all the typical components. A typical support area, about 4,000 feet to the north, contains approximately 14 buildings and is also fenced.



25X1D *FIGURE 7. TAPA RADAR SITE.*

Vyborg

Location: 4.5 nm WNW of the center of Vyborg
Coordinates: 60-43-50N 28-35-00E

25X1D [redacted]

Map: USATC 200/0103-24IHL, 3d ed, Jun 62, 1:200,000 (SECRET)

Remarks (Figure 8): A TALL KING radar antenna can be identified on the rectangular bunker just northeast of the central control bunker. In addition to all the other characteristic components, there is a small, sixth building alongside the access road to the operations area. The support area has a normal complement of buildings and, in addition, two unidentified rectangular structures that may be bunkers. Just north of it is a single building with a possible small dome and an unidentified object on the roof.

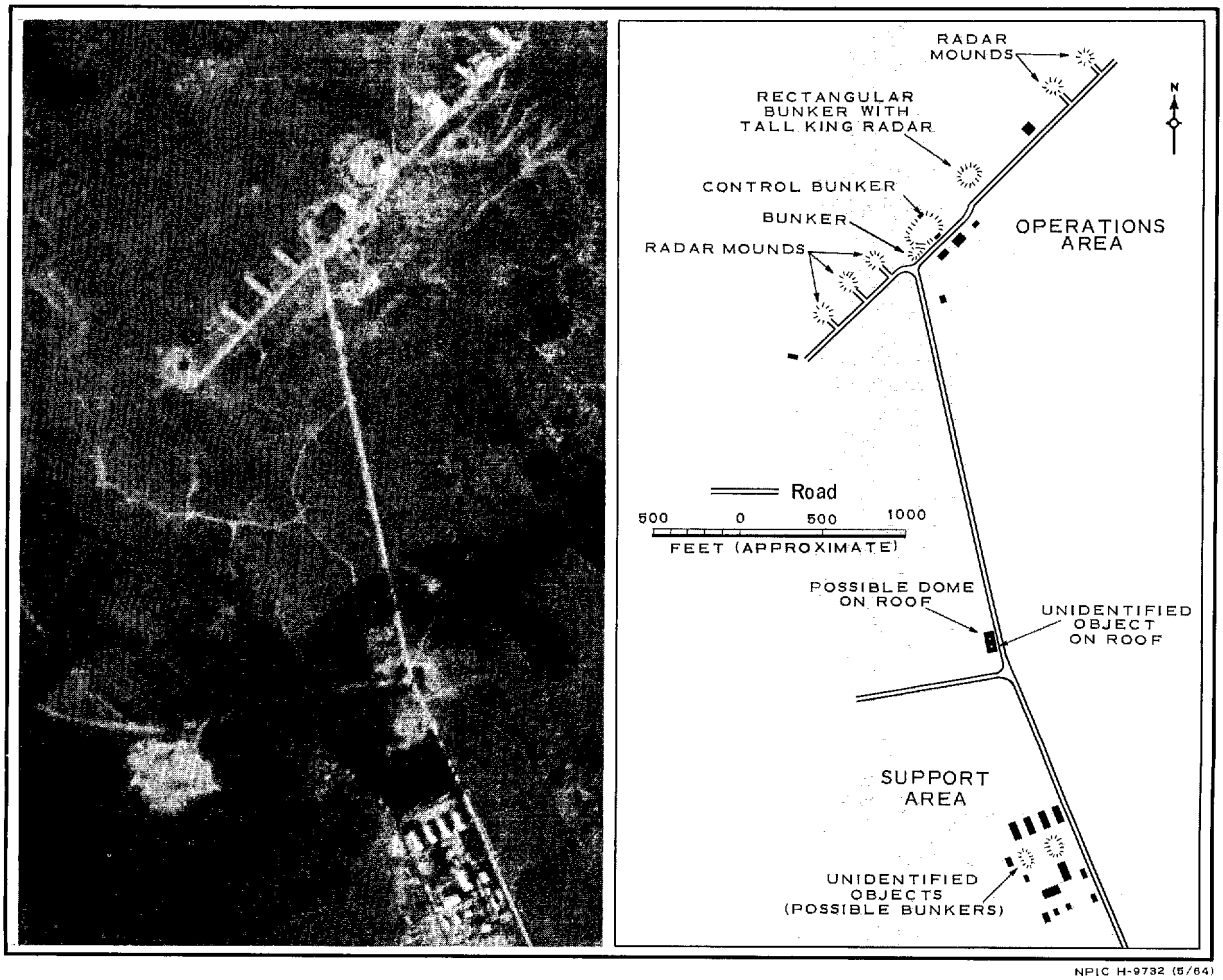


FIGURE 8. VYBORG RADAR SITE.

NPIC/R-299/64

INNER SITES

Although the inner sites resemble each other quite closely and appear to reflect the same design considerations as discussed earlier, they differ from the outer sites in a number of respects. For example, the inner sites have six radar positions in contrast to the five normally found at the outer sites. In addition, the six radars are placed on tall slender towers rather than on mounds, and the towers are arranged so that the radar line is not completely straight but rather bent or slightly curving. The length of the line along which the towers are spaced averages approximately 1,850 feet, compared to 2,600 feet for the outer sites; this shorter length may be accounted for by the smaller circumference of the inner circle.

Precise identification of components at the inner sites is hindered by their placement in woods where tree shadows obscure details. Each operations area, however, contains a characteristic administrative-type building shaped like a square C, a signature to the inner ring of sites.

There are no individual support areas as such connected with the inner sites. The sites are all located along the Leningrad SAM ring road, though, and support is apparently provided in common with the support for one or another of the nearby SAM sites.

Northeast

Location: 21 nm NE of the center of Leningrad
Coordinates: 60-05-30N 31-02-20E

25X1D [redacted]

Map: USATC 200/0103-25HL, 3d ed, Jun 62, 1:200,000 (SECRET)

Remarks (Figure 9): The quality of the photographic coverage of this site precludes identification of the characteristic towers. However, size and configuration together with the disposition of identifiable components appear sufficiently similar to consider this a confirmed site. Identifiable components include the typical square-C administrative-type building, the probable control bunker, and the connecting road. In addition, the buildings in the area are approximately equal in number and position to those at other sites. No support area is observed.

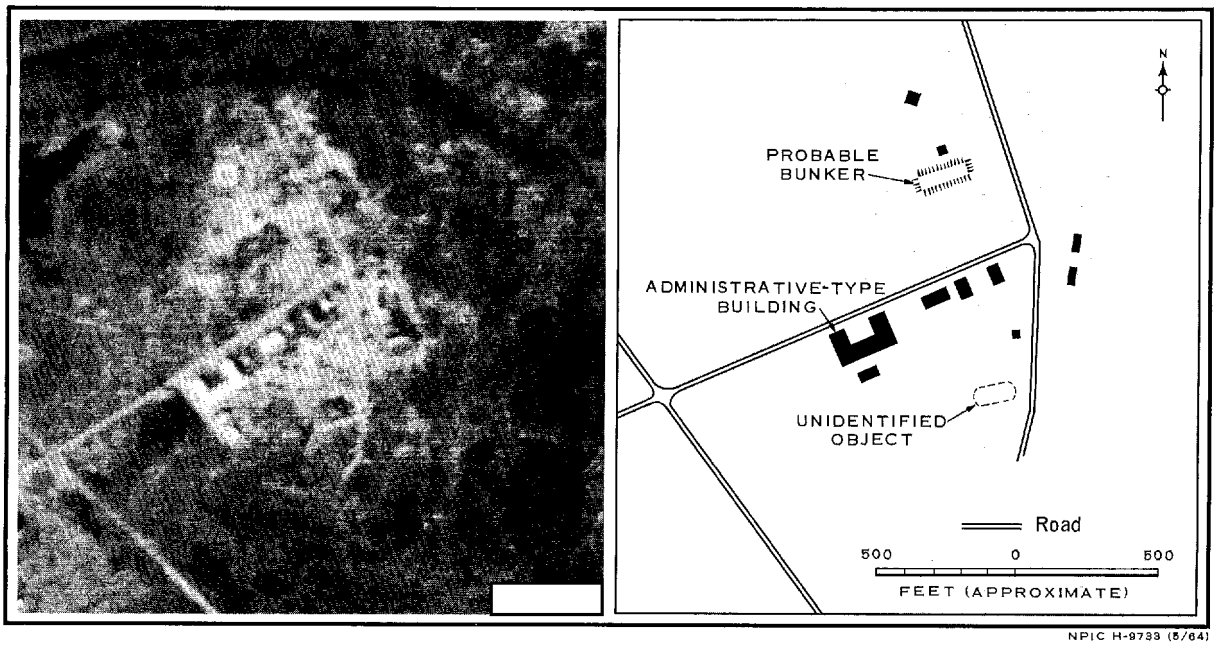


FIGURE 9. NORTHEAST RADAR SITE.

25X1D

NPIC/R-299/64

South-southeast

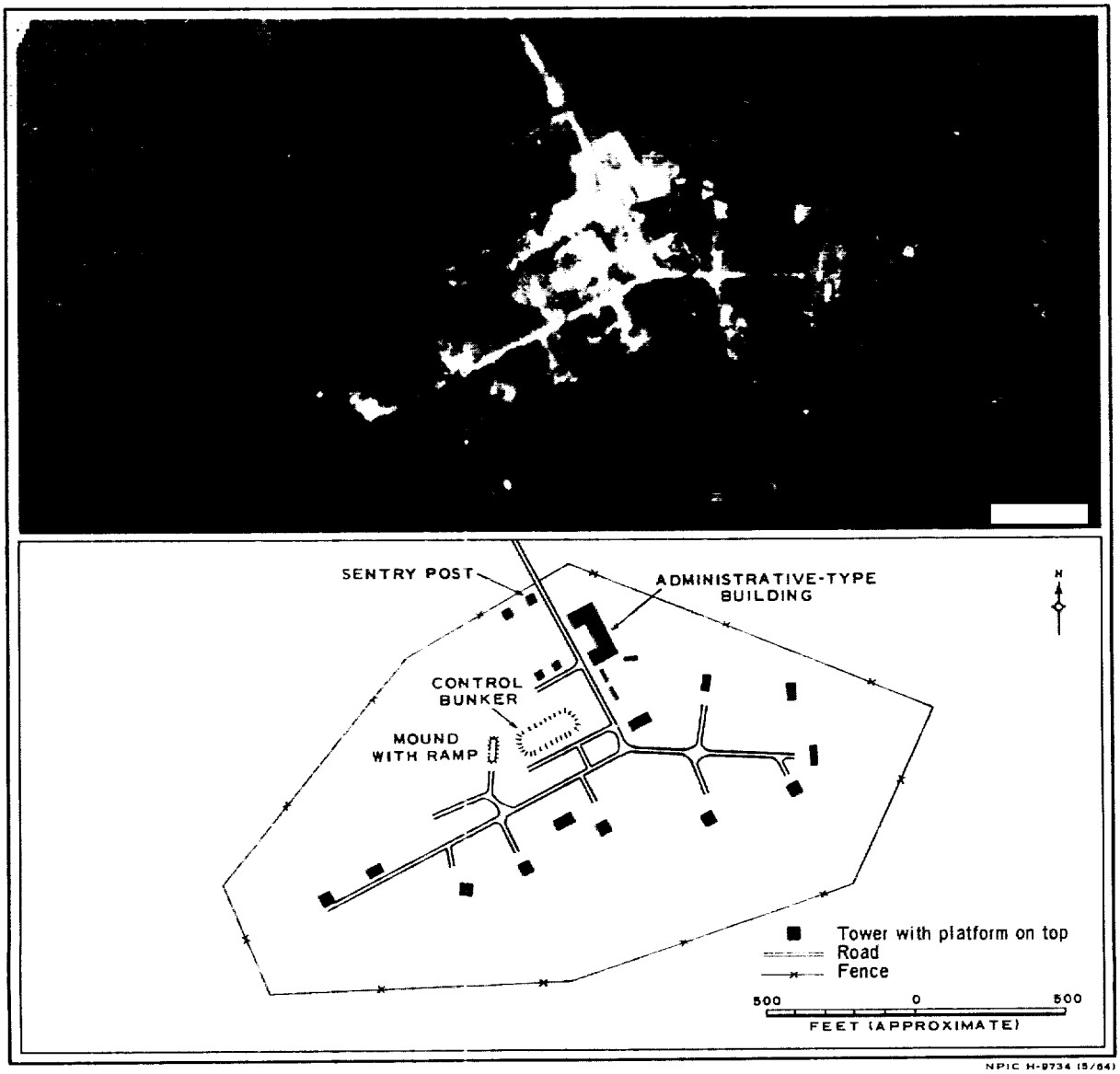
Location: 25 nm SSE of Leningrad; 6.5 nm SW of Ulyanovka

Coordinates: 59-32-20N 30-39-00E

25X1D [redacted]

Map: USATC 200/0153-4HL, 2d ed, May 63, 1:200,000 (SECRET)

Remarks (Figure 10): The operations area includes 6 towers, each about 65 feet high, a large control bunker, a radar-type mound with a ramp, and 14 buildings, all maintenance and utility types except for the characteristic square-C building. Support is provided by a SAM assembly and support facility 3.5 nm to the northeast. 2/



25X1D

FIGURE 10. SOUTH-SOUTHEAST RADAR SITE.

Northwest (probable)

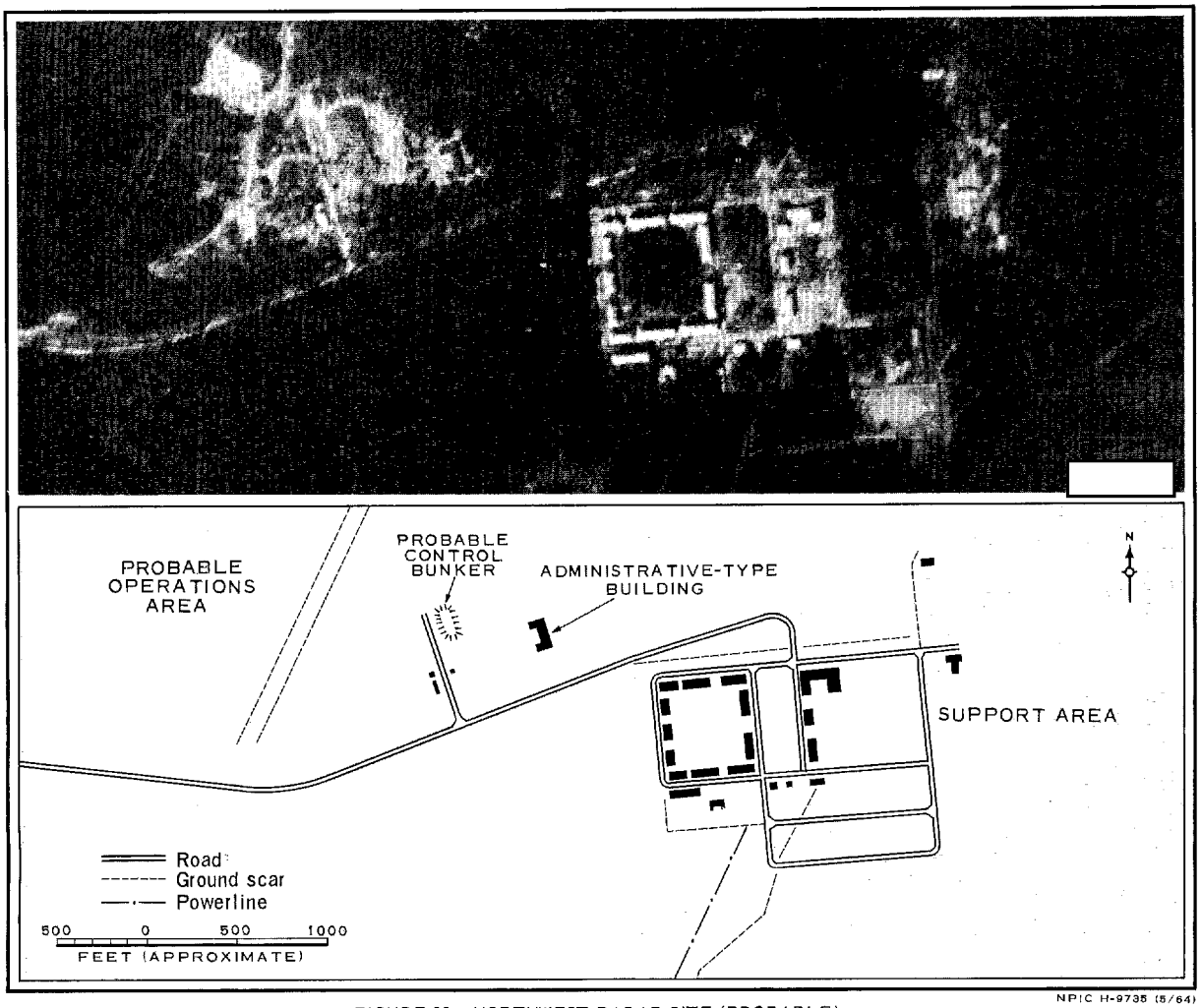
Location: 25 nm NW of Leningrad; 3.7 nm NE of Zelenogorsk

Coordinates: 60-14-20N 29-45-00E

25X1D [redacted]

Map: USATC 200/0103-25HL, 3d ed, Jun 62, 1:200,000 (SECRET)

Remarks (Figure 11): The site is situated among tall trees which preclude detection of the characteristic towers. However, the probable operations area does contain the square-C building, a probable control bunker, and roadway clearings through the woods, the pattern of which approximates that at other inner sites. In addition, the distance and direction of the site from Leningrad correspond with the expected location. Support could be provided in common with that for a group of nearby SAM sites by a support area situated just east-southeast of the probable operations area and connected to it by a newly constructed road.



25X1D [redacted]

FIGURE 11. NORTHWEST RADAR SITE (PROBABLE).

25X1

NPIC/R-299/64

Southwest

Location: 25.5 nm SW of Leningrad

Coordinates: 59-44-20N 29-33-55E

25X1D [redacted]

Map: USATC 200/0153-4HL, 2d ed, May 63, 1:200,000 (SECRET)

Remarks (Figure 12): The operations area includes 6 towers, each about 65 feet high, a control bunker at the center, the characteristic square-C administrative-type building, and 5 other smaller buildings. Support is provided by the area serving Leningrad SAM Site C25-2 [redacted] 25X1A

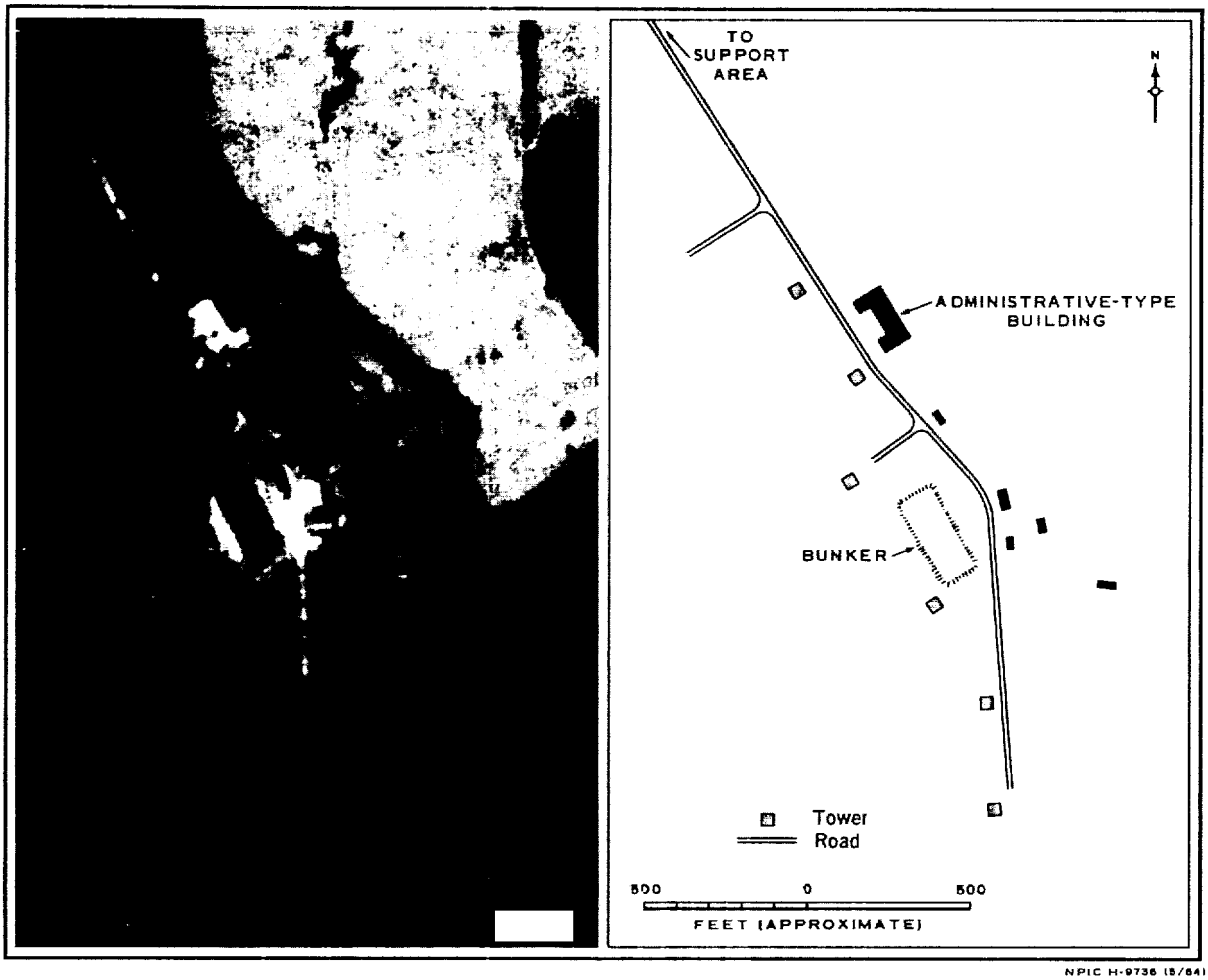


FIGURE 12. SOUTHWEST RADAR SITE.

25X1D

25X1

REFERENCES

DOCUMENTS

1. NPIC. R-89/64, *Moscow Air Defense Radar Sites, USSR,* Feb 64 (TOP SECRET [redacted] 25X1

2. NPIC. R-141/64, *SAM Assembly and Support Facilities, Leningrad, USSR* (pp. 7-9 and Fig 5), Feb 64 (TOP SECRET [redacted] 25X1

REQUIREMENT

CIA. C-SI3-80,260

NPIC PROJECT

N-227/64

Approved For Release 2006/01/17 : CIA-RDP78B04560A002200010059-0